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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/642,291

08/18/2003

Shoichiro Yasunami

Q77024

2020

65565 7590 01/08/2007  
SUGHRUE-265550  
2100 PENNSYLVANIA AVE. NW  
WASHINGTON, DC 20037-3213

EXAMINER

CHU, JOHN S Y

ART UNIT

PAPER NUMBER

1752

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/08/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/642,291	<b>Applicant(s)</b> YASUNAMI ET AL.	
	<b>Examiner</b> John S. Chu	<b>Art Unit</b> 1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This Office action is in response to the RCE filed November 20, 2006.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAO (6,977,131 B2) in view of SHULTZ et al (6,306,555 B1).

The claimed invention is drawn to the following as seen below:

1. (currently amended): A negative resist composition comprising:

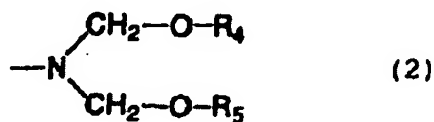
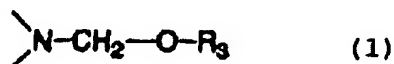
(A) an alkali-soluble resin;

(B-1) a cross-linking agent capable of cross-linking with the alkali-soluble resin (A) by the action of an acid, in which the cross-linking agent is not a resin and is a phenol compound containing: at least one phenolic hydroxyl group; one or more benzene rings in the molecule; and at least two cross-linking groups bonded to any of the benzene rings, the cross-linking group being a group selected from the group consisting of a hydroxymethyl group, an alkoxymethyl group and an acyloxymethyl group;

(B-2) a cross-linking agent capable of cross-linking with the alkali-soluble resin (A) by the action of an acid, in which the cross-linking agent contains at least two groups selected from the group consisting of the groups represented by the following formulae (1) and (2); ~~and~~

(C) a compound capable of generating an acid upon irradiation with an actinic ray or radiation; and

(D) a nitrogen-containing basic compound:



wherein R<sub>3</sub> represents a hydrogen atom, an alkyl group, or an alkylcarbonyl group; and R<sub>4</sub> and R<sub>5</sub> each ~~represent~~ represents a hydrogen atom, an alkyl group or an alkylcarbonyl group.

TAO discloses a radiation sensitive patterning composition wherein the composition comprises at least one crosslinking agent, a polymer capable of reacting with the crosslinking agent, an infrared absorbing compound and a polymer having an acid generating compound.

TAO lacks a working example using the claimed crosslinking agent having the structure of formula (1) or (2), namely a crosslinking agents having an alkoxyated melamine as claimed for (B-2).

Applicants are directed to column 5, lines 23 – column 6, lines 46 which discloses suitable crosslinking agents used as ingredient (B) in TAO wherein the list includes compounds having hydroxymethyl groups, alkoxymethyl groups and vinyl ether groups. Specific compounds include resol resins as well as alkoxymethylated glycouril groups, such as melamines and alkoxyated glycourils. The crosslinking agents as disclosed in TAO can be used alone or in combination of two or more as recited in column 6, line 45-46. The skilled artisan is clearly motivated to use a combination of the cited crosslinking agents and reasonably expect same or similar results as disclose for excellent curing and sensitivity.

SHULTZ et al discloses a photoresist compositin which is negative working wherein crosslinkable compounds are disclosed wherein the use of additive nitrogen containing basic compounds are disclose in the column 43, line 35 – column 44, line 23. Here the nitrogen compounds provide conventional properties for storage stability by neutralizing stray acid formed to preserve the composition.

It would have been *prima facie* obvious to one of ordinary skill in the art of photosensitive negative working resist compositions to use two crosslinking agents as disclosed in Example 4 substituting an alkoxymethylated melamine for the terephthaldicarboxaldehyde in

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Example 4 and reasonably expect same or similar results as recited for excellent sensitivity and curing rate as motivated and directed by the disclosure of TAO in column 6, lines 45 and 46.

It would have been further *prima facie* obvious to one of ordinary skill in the art to add known nitrogen-containing basic compounds as disclosed in SHULTZ et al to the composition of TAO et al with the reasonable expectation of same or similar results as known in the art for improved storage stability.

The arguments by applicants have been carefully considered, wherein the art of TAO et al prefer the use of the composition in lithographic printing plates, however TAO et al teach the use of their composition in the formation of microelectronic devices, printed circuit boards and other applications different from the printing plates as well, see column 4, lines 11-15, thus the use of convention nitrogen-containing basic compounds would be obvious to the skilled artisan as a storage stabilizing ingredient which is obvious to the skilled artisan and motivated by the disclosure of SHULTZ et al.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

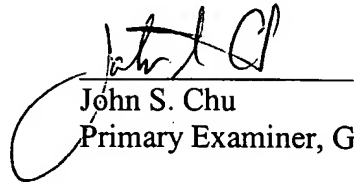
If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John S. Chu  
Primary Examiner, Group 1700

J.Chu  
January 2, 2007